

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-11. (cancelled)

12. (currently amended) A hearing aid for improving the hearing ability of a user, comprising:

an array of microphones, each producing a respective electrical microphone output signal, ~~each of the microphones in the array being an omnidirectional microphone;~~

~~means for deriving two array output signals from the microphone output signals, so that each of the microphone output signals is used in deriving at least one of the two~~ left and right summing structures, each receiving as inputs a subset of the microphone output signals, being constructed so as to generate left and right array output signals, respectively; and

~~two left and right transmissions paths, corresponding respectively to a left ear and a right ear of the user, each of the two transmission paths carrying a respective~~ corresponding one of the two left and right array output signals to a corresponding ear of the user;

~~wherein the hearing aid is arranged to have two different main sensitivity directions running at an angle with respect to a main axis of the array, each of the main sensitivity~~

~~directions being associated to a respective one of the~~ each of
the left and right summing structures acts on a corresponding
said subset of microphone output signals so that the left and
right array output signals, ~~each of the array output signals~~
~~being fed along its own one of the two transmission paths~~
correspond to two distinct main sensitivity directions that lie
at an angle to one another.

13. (previously presented) The hearing aid according to claim 12, wherein at least part of the array is mounted on a front of a pair of spectacles.

14. (previously presented) The hearing aid according to claim 12, wherein at least part of the array is mounted on an arm of a pair of spectacles.

15. (currently amended) The hearing aid according to claim 14, wherein each said arm of the spectacles is provided with ~~a subarray of~~ those of the array of microphones[[,]] that produce a respective one of the subsets of the microphone output signals ~~from said subarrays being fed to the respective transmission paths.~~

16. (currently amended) The hearing aid according to claim 12, wherein each of the ~~means for deriving the array output signals~~ left and right summing structures comprises a summing device, ~~producing as an output one of the array output signals,~~ and the summing device receiving as inputs weighted versions of the microphone output signals, ~~each of the microphone output~~

~~signals being received via a~~ produced by corresponding weighting factor ~~device~~ devices.

17. (currently amended) The hearing aid according to claim 12, wherein the ~~means for deriving the array output signals~~ each of the left and right summing structures comprises a series circuit of weighting factor device and summing device pairs;

wherein in each said pair, the summing device receives, as a first input, an output of the corresponding weighting factor device, and the summing device receives, as a second input, a respective one of the microphone output signals;

in each but a first of the pairs an input of the weighting factor device is provided by an output of ~~the~~ a preceding one of the ~~summing device~~ devices in the series circuit, and in the first of the pairs the input of the weighting factor device is provided by the microphone output signal of an outermost one of the microphones; and

an output of the summing device of a last of the series circuit pairs provides a respective one of the left and right array output signals.

18. (previously presented) The hearing aid according to claim 17, wherein the array output signal is derived via a further weighting factor device.

19. (previously presented) The hearing aid according to claim 16, wherein the weighting factor device comprises a delay device.

20. (previously presented) The hearing aid according to claim 19, wherein the weighting factor device comprises an amplitude-adjustment device.

21. (previously presented) The hearing aid according to claim 16, wherein the weighting factor device comprises a phase-adjustment device.

22. (previously presented) The hearing aid according to claim 21, wherein the weighting factor device further comprises an amplitude-adjustment device.

23. (previously presented) The hearing aid according to claim 17, wherein the weighting factor device comprises a delay device.

24. (previously presented) The hearing aid according to claim 18, wherein the weighting factor device comprises a delay device.

25. (previously presented) The hearing aid according to claim 17, wherein the weighting factor device comprises a phase-adjustment device.

26. (previously presented) The hearing aid according to claim 18, wherein the weighting factor device comprises a phase-adjustment device.

27. (new) The hearing aid of claim 12, wherein each of the left and right summing structures operates in a frequency-independent manner so that each of the main sensitivity directions is frequency-independent.

28. (new) The hearing aid of claim 12, wherein each of the main sensitivity directions also lies at an angle to a main axis of the array.

29. (new) The hearing aid of claim 12, wherein at least one of the microphones is omnidirectional.

30. (new) The hearing aid of claim 12, wherein each of the microphones is omnidirectional.

31. (new) The hearing aid of claim 27, wherein each of the microphones is omnidirectional.

32. (new) The hearing aid according to claim 31, wherein at least part of the array is mounted on an arm of a pair of spectacles.

33. (new) The hearing aid according to claim 32, wherein each said arm of the spectacles is provided with those of the array of microphones that produce a respective one of the subsets of the microphone output signals.

34. (new) A hearing aid for improving the hearing ability of a user, comprising:

an array of microphones, each producing a respective microphone output signal;

means for converting a first subset of the microphone output signals to a left array output signal;

means for converting a second subset of the microphone output signals to a right array output signal;

left and right transmissions paths, each carrying a corresponding one of the left and right array output signals to a corresponding ear of the user;

wherein each means for converting acts on a corresponding said subset of microphone output signals so that the left and right array output signals correspond to two distinct main sensitivity directions that lie at an angle to one another.

35. (new) The hearing aid of claim 34, wherein at least one of the microphones is omnidirectional.

36. (new) The hearing aid of claim 34, wherein each of the microphones is omnidirectional.

37. (new) The hearing aid of claim 34, wherein each of the main sensitivity directions also lies at an angle to a main axis of the array.

38. (new) The hearing aid of claim 34, wherein each means for converting operates in a frequency-independent manner so that each of the main sensitivity directions is frequency-independent.

39. (new) The hearing aid of claim 38, wherein each of the microphones is omnidirectional.

40. (new) The hearing aid according to claim 39, wherein at least part of the array is mounted on an arm of a pair of spectacles.

41. (new) The hearing aid according to claim 40, wherein each said arm of the spectacles is provided with those of the array of microphones that produce a respective one of the subsets of the microphone output signals.

42. (new) The hearing aid according to claim 34, wherein at least part of the array is mounted on a front of a pair of spectacles.

43. (new) The hearing aid according to claim 34, wherein at least part of the array is mounted on an arm of a pair of spectacles.

44. (new) The hearing aid according to claim 43, wherein each said arm of the spectacles is provided with those of the array of microphones that produce a respective one of the subsets of the microphone output signals.

45. (new) A hearing aid for improving the hearing ability of a user, comprising:

an array of microphones, each producing a respective microphone output signal;

left and right summing structures, each receiving as inputs a subset of the microphone output signals, each being constructed so as to generate left and right array output signals, respectively;

left and right transmissions paths, each carrying a corresponding one of the left and right array output signals to a corresponding ear of the user;

wherein each of the left and right summing structures acts on its subset of microphone output signals so that the left and right array output signals correspond to two distinct main sensitivity directions that lie at an angle to one another; and

wherein each of the left and right summing structures operates so that the array output signals include low, mid, and high audio frequency components.

46. (new) The hearing aid of claim 45, wherein at least one of the microphones is omnidirectional.

47. (new) The hearing aid of claim 45, wherein each of the microphones is omnidirectional.

48. (new) The hearing aid of claim 45, wherein each of the main sensitivity directions also lies at an angle to a main axis of the array.

49. (new) The hearing aid of 45, wherein the mid-frequency components include signals having a frequency of 2000 Hz.

50. (new) The hearing aid of 49, wherein the high-frequency components include signals having a frequency of 4000 Hz.

51. (new) The hearing aid of 50, wherein the low-frequency components include signals having a frequency of 500 Hz.

52. (new) The hearing aid of claim 51, wherein each of the microphones is omnidirectional.

53. (new) The hearing aid according to claim 52, wherein at least part of the array is mounted on an arm of a pair of spectacles.

54. (new) The hearing aid according to claim 53, wherein each said arm of the spectacles is provided with those of the array of microphones that produce a respective one of the subsets of the microphone output signals.

55. (new) The hearing aid according to claim 45, wherein at least part of the array is mounted on a front of a pair of spectacles.

56. (new) The hearing aid according to claim 45, wherein at least part of the array is mounted on an arm of a pair of spectacles.

57. (new) The hearing aid according to claim 56, wherein each said arm of the spectacles is provided with those of the array of microphones that produce a respective one of the subsets of the microphone output signals.

58. (new) A hearing aid for improving the hearing ability of a user, comprising:

an array of microphones, each producing a respective microphone output signal;

means for converting a first subset of the microphone output signals to a left array output signal that corresponds to a first main sensitivity direction;

means for converting a second subset of the microphone

output signals to a right array output signal that corresponds to a second main sensitivity direction that lies at an angle to the first main sensitivity direction; and

left and right transmissions paths, each carrying a corresponding one of the left and right array output signals to a corresponding ear of the user;

wherein each means for converting operates so that the array output signals include low, mid, and high audio frequency components.

59. (new) The hearing aid of claim 58, wherein at least one of the microphones is omnidirectional.

60. (new) The hearing aid of claim 58, wherein each of the microphones is omnidirectional.

61. (new) The hearing aid of claim 58, wherein each of the main sensitivity directions also lie at an angle to a main axis of the array.

62. (new) The hearing aid of 58, wherein the mid-frequency components include signals having a frequency of 2000 Hz.

63. (new) The hearing aid of 62, wherein the high-frequency components include signals having a frequency of 4000 Hz.

64. (new) The hearing aid of 63, wherein the low-frequency components include signals having a frequency of 500 Hz.

65. (new) The hearing aid of claim 64, wherein each of the microphones is omnidirectional.

66. (new) The hearing aid according to claim 65, wherein at least part of the array is mounted on an arm of a pair of spectacles.

67. (new) The hearing aid according to claim 66, wherein each said arm of the spectacles is provided with those of the array of microphones that produce a respective one of the subsets of the microphone output signals.

68. (new) The hearing aid according to claim 58, wherein at least part of the array is mounted on a front of a pair of spectacles.

69. (new) The hearing aid according to claim 58, wherein at least part of the array is mounted on an arm of a pair of spectacles.

70. (new) The hearing aid according to claim 69, wherein each said arm of the spectacles is provided with those of the array of microphones that produce a respective one of the subsets of the microphone output signals.